IMPORTANT UPDATE

TECHNICAL INSTRUCTIONS

FOR

SAFETY RECALL JOV

HYBRID SYSTEM SOFTWARE UPDATE

CERTAIN: 2010-2014 PRIUS

Technical Instructions for the 2012-2014 Prius V are in a separate document

Update 12.21.2018: The Calibration Verification Check has been removed until further notice.

The repair quality of covered vehicles is extremely important to Toyota. All dealership technicians performing this recall are required to successfully complete the most current version of the E-Learning course "Safety Recall and Service Campaign Essentials". To ensure that all vehicles have the repair performed correctly; technicians performing this recall repair are required to currently hold <u>at least one</u> of the following certification levels:

- Expert Technician (Hybrid)
- Master Technician
- Master Diagnostic Technician

It is the dealership's responsibility to select technicians with the above certification level or greater to perform this recall repair. Carefully review your resources, the technician skill level, and ability before assigning technicians to this repair. It is important to consider technician days off and vacation schedules to ensure there are properly trained technicians available to perform this repair at all times.



II. IDENTIFICATION OF AFFECTED VEHICLES

 Check the TIS Vehicle Inquiry System to confirm that each VIN is eligible for this Safety Recall, and that it has not already been completed prior to dealer shipment or by another dealer.

Note: TMNA warranty will not reimburse dealers for repairs completed on vehicles that are not affected or were completed by another dealer.

III. PREPARATION

1. PARTS

Part Number	Part Description	Quantity
00451-00001-LBL*	Authorized Modification Label	1

*Labels can be ordered in packs of 25 from the MDC through the Dealer Daily Website

2. TOOLS, SUPPLIES & EQUIPMENT

- Standard Hand Tools
- Techstream 2.0 / Techstream Lite with software version 13.30 or greater installed
- GR8 Battery Diagnostic Station
- T-SB-0134-16

SST – These Special Service Tools required for this repair:

Part Number	Tool Name	Quantity
09891-47020	Inverter Case Separator	1
Campaign tool	Joint Fuse removal tool	1

Joint Fuse Removal Tool

The fuse removal tools were shipped to the dealers for a previous campaign. Additional tools will also be sent.

IV. BACKGROUND

The involved vehicles were designed to enter a failsafe driving mode in response to certain hybrid system faults. Toyota has found that in rare situations, the vehicle may not enter a failsafe driving mode as intended. If this occurs, the vehicle could lose power and stall. While power steering and braking would remain operational, a vehicle stall while driving at higher speeds could increase the risk of a crash.

This recall remedy will address a new condition in the vehicles involved in previous Safety Recall E0E. The previous recall did not anticipate the new condition remedied with this recall.

V. INSPECT INVERTER CONDITION



VI. REPAIR INVERTER ASSEMBLY

Note: Repairing the inverter required only if DTC's P0A94, P324E, P3004 or P0A1A is present. If these DTC's are not present, skip to section VII. Determine CID Status on page 7.

1. DETERMINE INVERTER ASSEMBLY TYPE

a. Using the flowchart below determine the inverter type (A or B).



2. DETERMINE REPAIR COMPONENTS BASED ON DTC DETAIL CODE AND INVERTER TYPE

- a. If multiple DTCs are present save the freeze frame data.
- b. After saving the freeze frame data, clear codes and confirm what DTCs reset.
- c. If multiple codes return, follow the repair manual diagnosis procedure for the DTC with Freeze Frame Data Occurrence Order value of "1".
- d. Use the correct table below to identify the parts required for repair, the correct parts are listed in the bottom row of each table.

DTC	DTC DETAIL CODE	IPM REPLACEMENT	• MG-ECU • CURRENT SENSOR • INVERTER WIRE HARNESS	 MG-ECU CURRENT SENSOR IPM INVERTER WIRE HARNESS 	INVERTER ASSY
	127			X	
	172	Х			
	442			X	
	547		X		
	548			X	
	549		X		
	550			X	
	553	Х			
P0A94	554		X		
	555			Х	
	556		X		
	557	X			
	564			Х	
	585			X	
	587			Х	
	589			X	
	590			X	
P324E	788			X	
	151			X	
	155		X		
	156		X		
	166		X		
FUATA	200		X		
	658		X		
	659		X		
	791		X		
	131				X
Dooo (132				X
P3004	800	X			
	801	X			
PARTS & QUANTITY (QTY)		04899-47020 (1) 08887-02809 (2) 04899-47060 (1) 08826-00100 (1) 90430-18008 (1)	G920H-47030 (1) G920J-52010 (1) G9208-47090 (1) 04899-47060 (1) 08826-00100 (1) 90430-18008 (1)	04899-47020 (1) 08887-02809 (2) G920H-47030 (1) G920J-52010 (1) G9208-47090 (1) 04899-47060 (1) 08826-00100 (1) 90430-18008 (1)	ORDER BY VIN

TYPE A



Thermal grease for IPM replacement is NOT interchangeable. Only grease specified for the Prius inverter can be used. Grease for the Highlander IPM replacement will result in inverter failure if used.

TYPE B

DTC	DTC DETAIL CODE	IPM REPLACEMENT	MG-ECU	• MG-ECU • IPM	MG-ECU CURRENT SENSOR IPM	INVERTER ASSY
	127			Х		
	172	Х				
	442			Х		
	547		Х			
	548				Х	
	549		Х			
	550			Х		
	553	Х				
P0A94	554		Х			
	555				X	
	556		Х			
	557	Х				
	564			X		
	585			X		
	587			Х		
	589			X		
	590			X		
P324E	788				Х	
	151				Х	
	155		Х			
	156		Х			
	166		Х			
D0A1A	200		Х			
FUATA	658		Х			
	659		Х			
	791		Х			
	792		Х			
	793		Х			
	131					Х
50004	132					Х
P3004	800	Х				
	801	X				
	001	Л				
PARTS & QUANTITY (QTY)		04899-47020 (1) 08887-02809 (2) 04899-47060 (1) 08826-00100 (1) 90430-18008 (1)	G920H-47030 (1) 04899-47060 (1) 08826-00100 (1) 90430-18008 (1)	04899-47020 (1) 08887-02809 (2) G920H-47030 (1) 04899-47060 (1) 08826-00100 (1) 90430-18008 (1)	04899-47020 (1) 08887-02809 (2) G920H-47030 (1) G920J-52010 (1) 04899-47060 (1) 08826-00100 (1) 90430-18008 (1)	ORDER BY VIN



Thermal grease for IPM replacement is NOT interchangeable. Only grease specified for the Prius inverter can be used. Grease for the Highlander IPM replacement will result in inverter failure if used.

3. TO REPAIR THE INVERTER, CLICK ON THE RELEVANT LINK BELOW:

2010 Prius: Intelligent Power Module Transistor Removal

2011 Prius: Intelligent Power Module Transistor Removal

2012 Prius: Intelligent Power Module Transistor Removal

2013 Prius: Intelligent Power Module Transistor Removal

2014 Prius: Intelligent Power Module Transistor Removal

4. CONTINUE TO THE NEXT SECTION TO CONFIRM CID'S STATUS

VII. DETERMINE CID STATUS

1. DETERMINE STATUS of HYBRID CONTROL SYSTEM CID's

- a. Locate the <u>Update</u> column for the Hybrid Control System in the <u>Stored Data</u> tab.
- b. Determine the status of the <u>4 CID's</u> for the Hybrid Control ECU; indicated by a <u>YES</u> or <u>NO</u> in the Update column.
- Note: It's possible that all 4 CID's need to be updated, as well as it's possible that only 1, 2 or 3 of the 4 CID's need to be updated. If any of the CID's indicate 'Yes', proceed with the update procedure.



VIII. VEHICLE PREPERATION

The ECU reprograming procedure is detailed in <u>T-SB-0134-16</u>. Reference this Bulletin for additional detailed procedures and information.

1. VEHICLE BASICS

- a. Confirm the following conditions:
 - Vehicle in the IG position (engine off).
 - Transaxle in Park.
 - Parking brake engaged.
 - Turn off all electrical accessories(i.e. Headlights, wipers, climate control, audio system, etc.)

2. CONNECT THE 12v BATTERY TO A POWER SUPPLY (GR8)

- a. Connect the GR8 or other type of a power supply (not a battery charger) to the 12v battery.
- b. Select the Power Supply Mode from the Charge Menu of the GR8.



A power supply *MUST* be used during reprogramming. ECU damage will occur if the battery voltage is not properly maintained during this re-flash procedure.

Note: A power supply must be connected directly to the 12v battery terminals and <u>NOT</u> the remote jump posts under the hood (if equipped).

3. VERIFY TECHSTREAM SETUP

- a. Verify that the Techstream meets the following conditions:
 - Software version 13.30 or greater is installed.
 - The Techstream battery is fully charged. If not, connect the Techstream to a 120v source.
 - The DLCIII cable is in good condition.



The Techstream battery must be maintained during the update procedure. If necessary, plug the Techstream into a 120v outlet to ensure that a failure does not occur.

Note: If the Techstream communication with the vehicle fails during the re-flash procedure, the ECU will be damaged and must be replaced.

4. Verify Techstream Configuration

- a. From the menu at the top of the screen, select: Setup / Techstream Configuration.
- b. Continue to the third setup screen: Required Information.
- c. Verify that "US Dealer 1" is selected as the User Type.

F	Please input the following information. Required Information
	This Information is used for error report follow up.
	Dealer Name Toyota
	Dealer Code
	Dealer Phone 123-456-7890
	Dealer Country United States VRegion
	This selection is used to configure Techstream network settings.
	User Type US Dealer 1 -
	Example: TOYOTA/LEXUS/SCION Dealers in the U.S. for one.tis.toyota.com

5. MAINTAIN BRAKE SYSTEM PRESSURE

- a. Depress the brake pedal fully 2 times within 2 seconds.
 - Note: You may hear the hydro-boost pump run for a few seconds when completing these steps. This procedure will prevent the pump from running during the calibration update procedure.



- 6. REMOVE JOINT FUSE FROM ENGINE ROOM FUSE BOX
 - a. Confirm the joint fuse orientation before removal because the fuse can be installed in either direction.
 - b. Using the fuse puller remove the joint fuse that encases the CDS (30A), RDI (30A) and HTR (50A).

Permanent damage to the ECU's can happen if these fuses are not removed.

Removing these fuses will stop the vehicle from performing onboard diagnostic tests during the update, which could cause the update to fail and damage the ECU.

IX. CUWC APPLICATION

1. INSTALL CUWC FILE INSTALLER (Only required once for each Techstream)

- a. In TIS, select the following:
 - TIS / Diagnostics / Reprograming

Home TIS	Service Lane	e / TAS / RTS /	TQCN PRS	QAT Admin
• Library • Diagnostics	O Tech Assistance	• Vehicle Inquiry		
Scantool	Reprogramming	Add / Remove Key	Telematics	Navigation
Calibrations Configurations				
Calibration/Multimedia Sear	ch Form			
Choose the criteria you would lil Division/Mod	ke to search by: el/Year	Calibration ID/Multime Division: TOYOT/ Model:All	adia ID	VDS
		Year: ALL	▼ Search	
ECU Calibrations	Multimedia Upda	tes		

- b. On the right side of the screen, select the following from the Reference Documents:
 - CUWC Reprogramming Installer
 - Follow the on-screen instructions to complete the installation.

Reference Documents
CUWC Reprogramming Installer To support Safety Recall JOV you will need to download this reprogramming installer
Multimedia Software Download Instructions Step-by-step instructions for downloading multimedia software update files to USB f
Safety Recall A0G – 2003 Sequoia – Skid Control ECU Update Software application and installation guide
Vehicle Reprogramming Tips This quick reference sheet outlines reprogramming best practices.
Toyota ECU Flash Reprogramming Bulletin T-SB-0012-13 A complete guide to reprogramming with TIS Techstream and Techstream Lite.

Note: The installation of the CUWC Reprograming Installer will only need to be completed one time for each Techstream.

(cont. on next page)

Installation of the CUWC Reprograming Installer is required on each Techstream to install the new format of Calibration ID's. This new format will automatically, if needed, run the Calibration Wizard twice to complete the installation of updated CID's in both the Power Management and Motor Generator ECU's.



The following message will appear when the CUWC installation application is running. <u>This image</u> <u>cannot be closed</u> manually. When the installation of all necessary CID's is complete, the image will close.

Message displayed during CID update process:



MULTIPLE CID'S MAY BE UPDATED

The CUWC Application will update the Hybrid Control System CID #1 (PM Main) using the Calibration Wizard, as required for Safety Recall JoV. Additionally, it will update CID #2, #3, and #4 of the Hybrid Control System using the Calibration Wizard, as needed, if the vehicle has not had Safety Recall EOE completed. When selecting an installation link from the charts below, please understand that the Calibration Wizard may **AUTOMATICALLY** run twice to complete the installation. The first installation will update CID #1 (PM Main) as required on all vehicles, and update CID #2 (PM sub) if necessary. The Calibration Wizard will then close as normal. If CID's #3 and #4 need to be updated, the Calibration Wizard will **AUTOMATICALLY** open again and compete these installations. DO NOT exit the application or shut off the vehicle or Techstream while the large CUWC text box is present on the screen. Permeant damage to the ECU will occur.

CID #1: Power Management Main CID #2: Power Management sub

CID #3: Motor Generator #1 CID #4: Motor Generator #2



X. CID INSTALLATION

2. INSTALLATION OF CID'S

- a. Identify the Hybrid Control CID #3 & #4 from the Stored Data tab.
- b. Referencing the correct model year in the chart's below, identify the chart that has the correct CID #3 & #4.

Note: On the 2010 models, CID #3 & #4 will appear in two separate charts. It will be necessary to also identify CID#1 in the chart.

- c. Select the Group # link (blue text) to begin the update process.
- d. Follow the instruction on the screen to complete the installation.



Note: The 2010 Prius models will have CID #3 & CID #4 match in two groups. It will be necessary to also identify CID #1 in the chart.

Year	CID#	Original	Current
		896B3470 5000	
		896B3470 <mark>5100</mark>	
		896B3470 5200	
		896B3470 5300	
		896B3470 5400	<u>2010 Prius #1</u>
		896B3470 5500	CID #1: 896B34751000
		896B3470 5600	CID #2: 896B54701100
		896B3470 5700	CID #3: 898844701400
2010		896B3470 5800	CID #4: 898844702300
Prius		896B3470 5900	
	CID #2	896B54701000	
		896B54701100	
	CID #3	89884470 1200	
		89884470 1300	
		89884470 1400	
		89884470 2100	
	CID #4	89884470 2200	
		89884470 2300	

		896B3470 1000	
		896B3470 1100	
		896B3470 1200	
		896B3470 1300	
		896B3470 1400	<u>2010 Prius #2</u>
		896B3470 1500	CID #1: 896B34732000
		896B3470 1600	CID #2: 896B54701100
		896B3470 1700	CID #3: 898844701400
2010		896B3470 1800	CID #4: 898844702300
Prius		896B3470 1900	
	CID #2	896B54701000	
		896B54701100	
		89884470 1200	
	CID #3	89884470 1300	
		89884470 1400	
	CID #4	89884470 2100	
		89884470 2200	
		89884470 <mark>2300</mark>	

(2010 Prius Continued on next page)

Year	CID#	Original	Current
		896B3470 5000	
		896B3470 5100	
		896B3470 <mark>5200</mark>	
		896B3470 5300	
		896B3470 5400	2010 Prius #3
	CID #1	896B3470 5500	CID #1: 896B34751000
		896B3470 5600	CID #2: 896B54701100
		896B3470 5700	CID #3: 898844708200
2010		896B3470 5800	CID #4: 898844709200
Prius		896B3470 5900	
	CID #2	896B54701000	
		896B54701100	
		89884470 8000	
	CID #3	89884470 8100	
		89884470 8200	
	CID #4	89884470 9000	
		89884470 9100	
		89884470 9200	
		896B3470 1000	
		896B3470 1100	
		896B3470 1200	
		896B3470 1300	
		896B3470 1400	2010 Prius #4
	CID #1	896B3470 1500	CID #1: 896B34732000
		896B3470 1600	CID #2: 896B54701100
		896B3470 1700	CID #3: 898844708200
2010		896B3470 1800	CID #4: 898844709200
Prius		896B3470 1900	
		896B54701000	
	CID #2	896B54701100	
		89884470 8000	
	CID #3	89884470 8100	
		89884470 8200	
		89884470 9000	
	CID #4	89884470 9100	
		89884470 9200	

Year	CID#	Original	Current
		896B34714000	
		896B34714100	
		896B34714200	
	CID #1	896B34714300	
		896B34714400	<u>2011 Prius #1</u>
		896B34714500	CID #1: 896B34714700
2011		896B34714600	CID #2: 896B54701100
Prius	CID #2	896B54701100	CID #3: 898844701400
		89884470 1200	CID #4: 898844702300
	CID #3	89884470 1300	
		89884470 1400	
		89884470 2100	
	CID #4	89884470 2200	
		89884470 2300	
		•	
		896B34714000	
		896B34714100	
		896B34714200	
	CID #1	896B34714300	
		896B34714400	<u>2011 Prius #2</u>
		896B34714500	CID #1: 896B34714700
2011		896B34714600	CID #2: 896B54701100
Prius	CID #2	896B54701100	CID #3: 898844708200
		89884470 8000	CID #4: 898844709200
	CID #3	89884470 8100	
		89884470 8200	
		89884470 9000	
	CID #4	89884470 9100	

9200

Year	CID#	Original	Current
		896B34720000	
		896B34720100	
	CID #1	896B34720200	
		896B34720300	<u>2012 Prius #1</u>
		896B34720400	CID #1: 896B34720500
2012	CID #2	896B54708000	CID #2: 896B54708000
Prius		89884470 1200	CID #3: 898844701400
	CID #3	89884470 1300	CID #4: 898844702300
		89884470 1400	
		89884470 2100	
	CID #4	89884470 2200	
		89884470 2300	
	- -		
		896B34720000	
		896B34720100	
	CID #1	896B34720200	
		896B34720300	<u>2012 Prius #2</u>
		896B34720400	CID #1: 896B34720500
2012	CID #2	896B54708000	CID #2: 896B54708000
Prius		89884470 8000	CID #3: 898844708200
	CID #3	89884470 8100	CID #4: 898844709200
		89884470 8200	
		89884470 <mark>9000</mark>	
	CID #4	89884470 9100	
		89884470 9200	

Year	CID#	Original	Current
	CID #1	896B34736000	
		896B34736100	
		896B34736200	2013 Prius #1
		896B34736300	CID #1: 896B34736400
2012	CID #2	896B57602000	CID #2: 896B57602000
2013 Prius	CID #3	89884470 1200	CID #3: 898844701400
Thus		89884470 1300	CID #4: 898844702300
		89884470 1400	
	CID #4	89884470 2100	
		89884470 2200	
		89884470 2300	

	CID #1	896B34736000	
		896B34736100	
		896B34736200	<u>2013 Prius #2</u>
		896B34736300	CID #1: 896B34736400
2012	CID #2	896B57602000	CID #2: 896B57602000
2013 Prius	CID #3	89884470 <mark>8000</mark>	CID #3: 898844708200
Filus		89884470 8100	CID #4: 898844709200
		89884470 8200	
	CID #4	89884470 <mark>9000</mark>	
		89884470 <mark>9100</mark>	
		89884470 9200	

Year	CID#	Original	Current
		896B34747000	
	CID #1	896B34747100	
		896B34747200	<u>2014 Prius #1</u>
	CID #2	896B57602000	CID #1: 896B34747300
2014		89884470 1200	CID #2: 896B57602000
Prius	CID #3	89884470 1300	CID #3: 898844701400
		89884470 1400	CID #4: 898844702300
		89884470 2100	
	CID #4	89884470 2200	
		89884470 2300	

	CID #1	896B34747000	
		896B34747100	
		896B34747200	<u>2014 Prius #2</u>
2014 Prius	CID #2	896B57602000	CID #1: 896B34747300
	CID #3	89884470 8000	CID #2: 896B57602000
		89884470 8100	CID #3: 898844708200
		89884470 8200	CID #4: 898844709200
	CID #4	89884470 <mark>9000</mark>	
		89884470 9100	
		89884470 9200	

XI. COMPLETE REPAIR



1. REINSTALL JOINT FUSE INTO ENGINE ROOM FUSE BOX

- a. Confirm the joint fuse orientation before reinstalling because the joint fuse can be installed in either direction.
- b. Reinstall the joint fuse that encases the CDS (30A), RDI (30A) and HTR (50A).

STOP BE SURE TO ORIENT THE FUSE AS SHOWN ON THE FUSE BLOCK COVER.



- 2. PERFORM VERIFICATION HEALTH CHECK
 - a. Using a Techstream, perform a Health Check.
 - c. Clear DTC's that may have set during the re-flash procedure.
 - d. Re-run the Health Check to confirm that no DTC's reappear.



THIS VERIFICATION HEALTH CHECK IS NECESSARY to update the results and CID's to the National database.

1. CONFIRM CID UPDATE

STOP

a. On the Stored Data tab, confirm the following for the Hybrid Control System:

• The Update column lists "No" for all 4 Hybrid Control System CID's





Note: If you receive the following message <u>after</u> the Verification Health Check, you have not properly completed the Required Calibration Updates!!



2. PRINT CUSTOMER HEALTH CHECK REPORT

a. From the Stored Data tab, select the Customer Health Check Report button (TIS will launch when button is pressed).

Techstream (Ver 8.3	0.023) - 11067					
File Function Setup	TIS User Help					
System Select Store	ed Data					
2010 Prius 2ZR-FXE	Tire Pressure / Threshold	/alue [psi(gauge)]	<u>0</u>		.	
JTDKNSDU9A1010658	Sensor 1: 27.5 / N/A Sensor 3: 27.5 / N/A Sensor 5: N/A / N/A	Sensor 2: 29.0 / Sensor 4: 30.1 /	N/A N/A		Customer Health	
2010_Prius_2ZR File Notes	Health Check Results				Check Button	
 Health Checi Data 1.20° 	System	Monitor D	TC <u>Curr</u> Pend Hist Perm SB	Calibration L		
	Engine and ECT	Inc		34715100 A4701000		
	Hybrid Control	· ·		896834701800 896854701100 898844701400 898844702300		
	Cruise Control					
	Tire Pressure Monitor					
	ABS/VSC/TRAC			F152647106 2		
	Occupant Detection					
	Air Conditioner					
	Combination Meter			838004737004 ? 838004737004 838004737004		
	Main Body			590C1U2A**01		
	D-Door Motor					
Sort	Smart Key					
E	P-Door Motor	-				
Expand>>	RR-Door Motor					
TIS Search	KL-Door Motor					
no otalui	master switch	· · · · ·				
Print Back	2014/01/21 18:18:35		<u>i</u>	ି 🐼 😳		
19309-05				Defectivities bit 2		

- b. Log in to TIS.
- c. Input Vehicle Mileage and Repair Order number.
- d. Check the "Performed" campaign button for campaign J0V.
- e. Select the Report button.

f. Confirm Customer Health Check Report information is correct.

\odot	Diagnostic Report			
	Vehicle Information			
Vehicle: 2013 Prius Repair Order: 12345	VIN: JTDKN3DU7D1615492	Mileage: 13672		
Health Check Summary				
Checkpoints	Status	Comments		
Powertrain	All systems OK			
Chassis	All systems OK			
Electrical	All systems OK			
Network Systems	All systems OK			
Service Campaigns	No Action Required	JOV Performed		
		Performed: 02/20/14, 4:36 PM (PST)		
		Technician Signature		
		Quality Inspector Signature		

- g. Print Customer Health Check Report from TIS.
- h. Sign and provide to the customer.

3. ATTACH THE AUTHORIZED VEHICLE MODIFICATION LABEL

- a. Fill out the label.
- b. Affix the label to the under-side of the hood.



◄ VERIFY REPAIR QUALITY ►

- Confirm all ECM Calibration has been updated successfully to the NEW CID's.
- Confirm that the Authorized Modification Label has been installed
- If you have any questions regarding this Safety Recall, please contact your regional representative

XII. APPENDIX

A. PARTS DISPOSAL

As required by Federal Regulations, please make sure all recalled parts (original parts) removed from the vehicle are disposed of in a manner in which they will not be reused, *unless requested for parts recovery return*.

B. CAMPAIGN DESIGNATION DECORDER

